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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,935	12/05/2001	Holger Klapproth	41993	4721

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EXAMINER	
FORMAN, BETTY J	

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/889,935	KLAPPROTH ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-14 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-14 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 2 September and 25 October 2005 in which claim 24 was amended. The amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 2 March 2005, not reiterated below, are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are discussed below as they apply to the instant grounds for rejection. New grounds for rejection, necessitated by the amendments, are discussed.

Claims 12-14 and 24 are under prosecution.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 12 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Pirrung et al (U.S. Patent No. 5,143,854, issued 1 September 1992).

Regarding Claim 24, Pirrung et al disclose a method for producing a polyfunctional copolymer monolayer (i.e. array of peptides), the method comprising assembly of copolymer

chains (peptides, Column 6, lines 22-33) attached to the surface wherein each chain comprises multiple units (amino acids, Column 6, lines 9-20) having one or more functional groups allowing interaction with a sample (e.g. receptor, Abstract). Pirrung et al teach the method comprising immobilizing a layer of ionic polymerization initiators (linkers) on the surface (Column 11, line 66-Column 12, line 20) wherein the initiators comprise functional groups for substrate linkage and polymerization initiation (Column 12, lines 1-67) and initiating polymerization reactions (photoactivation) in the presence of monomers comprising functional groups and polymerizing to produce polymer chains (peptides) (Claim 1).

Regarding Claim 12, Pirrung et al disclose the method wherein the initiator comprises a chlorosilane (Column 12, lines 30-36).

Response to Arguments

4. Applicant asserts that Pirrung et al teach sequential steps of polymerization but do not teach self-perpetuated polymerization as claimed. The argument has been considered but is not found persuasive because the claims are not limited to "self-perpetuated" polymerization. Furthermore, the open claim language "comprising" encompasses any additional steps performed by Pirrung.

5. Claims 12 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Sundberg et al (U.S. Patent No. 5,919,523, issued 6 July 1999).

Regarding Claim 24, Sundberg et al disclose a method for producing a polyfunctional copolymer comprising assembly of copolymer chains (oligonucleotides) attached to the surface wherein each chain comprises multiple units having one or more functional groups allowing interaction (hybridization) with a sample the method comprising immobilizing a plurality of polymerization initiators on the surface wherein the initiators comprise functional groups for

substrate linkage and polymerization initiation (Column 2, 20-37 and Fig. 8-11) and initiating polymerization reactions in the presence of monomers comprising functional groups (nucleotides) and comonomers (additional monomers) (Column 18, line 28-Column 19, line 59).

Regarding Claim 12, Sundberg et al disclose the method wherein the initiator comprises a thiol group, chlorosilane or alkoxysilane (Column 11, lines 45-Column 12, line 9).

Response to Arguments

6. Applicant asserts that Sundberg et al teach sequential steps of polymerization but do not teach self-perpetuated polymerization as claimed. The argument has been considered but is not found persuasive because the claims are not limited to "self-perpetuated" polymerization. Furthermore, the open claim language "comprising" encompasses any additional steps performed by Sundberg.

NEW GROUNDS FOR REJECTION:

The following new grounds for rejection are based on the amendments and Applicant's remarks asserting that the claims are limited to a "self-perpetuating polymerization" reaction. The references cited below are encompassed by the asserted single reaction polymerization. However, as stated above, the open claim language "comprising" encompasses additional steps taught by those references. The following new grounds for rejection are made of record to inform Applicant that even if the claims are limited to "self-perpetuating" reaction, the claims are not free of the prior art.

7. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Uhlen (U.S. Patent No. 5,405,746, issued 11 April 1995).

Regarding Claim 24, Uhlen discloses a method for producing a polyfunctional copolymer comprising assembly of copolymer chains (oligonucleotides) attached to the surface

wherein each chain comprises multiple units having one or more functional groups allowing interaction (hybridization) with a sample the method comprising immobilizing a plurality of polymerization initiators (primers, Column 4, lines 49-55) on the surface wherein the initiators comprise functional groups for substrate linkage and polymerization initiation and initiating polymerization reactions on the initiated surface in the presence of monomers comprising functional groups (nucleotides) and comonomers (additional monomers) and growing polymer chains by a polymerization chain reaction in the presence of monomers (i.e. immobilized PCR, Example 4, Column 10-11).

8. Claim 24 is rejected under 35 U.S.C. 102(e) as being anticipated by Morris et al (U.S. Patent No. 6,017,738, issued 25 January 2000).

Regarding Claim 24, Morris et al disclose a method for producing a polyfunctional copolymer comprising assembly of copolymer chains (oligonucleotides) attached to the surface wherein each chain comprises multiple units having one or more functional groups allowing interaction (hybridization) with a sample the method comprising immobilizing a plurality of polymerization initiators (primers) on the surface wherein the initiators comprise functional groups for substrate linkage and polymerization initiation and initiating polymerization reactions on the initiated surface in the presence of monomers comprising functional groups (nucleotides) and comonomers (additional monomers) and growing polymer chains by a polymerization chain reaction in the presence of monomers (Abstract).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 24, 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coté et al (U.S. Patent No. 6,485,703, having priority to provisional application filed, 31 July 1998) in view of DiCosmo et al (U.S. Patent No. 6,132,765, filed 15 April 1997).

Regarding Claim 24, Coté et al disclose a process for production of a polyfunctional copolymer monolayer comprising an assembly of copolymer chains attached to a surface (i.e. hydrogel adherent to a substrate, Column 5, lines 56-62) wherein the copolymer chains comprising monomers with functional groups (Column 6, lines 41-Column 7, line 59) the method comprising immobilizing a plurality of polymerization initiators on the surface (i.e. adherence, Column 26, line 10) and initiating polymerization reaction in the presence of monomers and comonomers (Column 25, line 25-Column 26, line 67). Coté et al teaches the method wherein the initiators and subsequent monolayer are adherent to the surface (e.g. Column 5, lines 56-62) which clearly suggests functional group interaction between the surface and the monolayer. DiCosmo et al teach a similar monolayer wherein the monolayer is adhered to the surface via linker molecules comprising functional groups (Column 5, lines 3-16) whereby the monolayer is maintained on the surface of a medical device thereby reducing device-related infections as taught by DiCosmo (Column 3, line 62-Column 4, line 51).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the function group attachment of DiCosmo et al to the monolayer adherence of Coté et al based on their desire for adherence and for the added benefit of maintaining the monolayer on the surface of a medical device thereby reducing device-related infections as taught by DiCosmo (Column 3, line 62-Column 4, line 51).

Regarding Claim 12, Coté et al disclose the process wherein the initiator comprises a thiol group (Column 25, lines 60-62).

Regarding Claim 13, Coté et al disclose the process wherein the initiator comprises a ketone group in conjugation with an aromatic system (i.e. 2-2-dimetholy-2-phenyl-acetonpheonone) (Example 2, Column 40, line 51-66).

Regarding Claim 14, Coté et al disclose the process wherein the initiator comprises an aromatic ketone (i.e. 2-2-dimetholy-2-phenyl-acetonpheonone) (Example 2, Column 40, line 51-66).

11. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundberg et al (U.S. Patent No. 5,919,523, issued 6 July 1999) in view of Coté et al (U.S. Patent No. 6,485,703, having priority to provisional application filed, 31 July 1998).

Regarding Claims 13-14, Sundberg et al disclose a method for producing a polyfunctional copolymer comprising assembly of copolymer chains (oligonucleotides) attached to the surface wherein each chain comprises multiple units having one or more functional groups allowing interaction (hybridization) with a sample the method comprising immobilizing a plurality of polymerization initiators on the surface wherein the initiators comprise functional groups for substrate linkage and polymerization initiation (Column 2, 20-37 and Fig. 8-11) and initiating polymerization reactions in the presence of monomers comprising functional groups (nucleotides) and comonomers (additional monomers) (Column 18, line 28-Column 19, line 59). Sundberg et al further teach the linkers comprise aromatic compounds i.e. light sensitive protecting groups wherein the protective groups are selected from a large group of light-reactive groups(Column 12, lines 58-67) but they do not teach aromatic ketones.

However, Coté et al teaches light-reactive groups encompass aromatic ketone (e.g. 2-2-dimetholy-2-phenyl-acetonpheonone, Example 2, Column 40, line 51-66). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the aromatic ketone of Coté et al to the photosensitive group of Sundberg et al. One of ordinary skill in the art would have been motivated to do so with reasonable expectation of success based on the encompassing teaching of Sundberg (Column 12, lines 58-60).

The courts have stated with regard to chemical homologs that the greater the physical and chemical similarities between the claimed species and any species disclosed in the prior art, the greater the expectation that the claimed subject matter will function in an equivalent manner (see *Dillon*, 99 F.2d at 696, 16 USPQ2d at 1904).

Response to Arguments

12. Applicant asserts that the instant claims are drawn to "fixed location" for the initiator and resulting monolayer. Applicant argues that the cited references do not teach these elements. The arguments have been considered but are not found persuasive because the claims are not limited to initiators at "fixed locations" as asserted and because Cote specifically teaches monolayers (e.g.Example 6). Furthermore, Applicant's assertion that "a viscous solution of initiators mixed with polymer precursors is not a monolayer is deemed an unsupported argument of counsel.

> The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. (see (MPEP 716.01(c).

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
December 29, 2005